DOE Hydrogen Program

MSM Future Direction - Proposed

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Component Model Updates

- **Update to GREET 1.8**
  - **GREET 1.7 was used for this work**
  - **GREET 1.8a was released 2 weeks ago**
- **H2A Production update with new case studies is underway**
- **HDSAM update is nearing completion and will be made public soon**

- **The MSM will need to keep up with model updates as they are released**

Update & Improve MSM Operation

- **Develop a functional database for run archival**
  - **Every run is being saved**
  - **Create searchable / relational database so previous runs can be found and analyzed**
  - **Keep track of full GDS and MSM & model versions**
- **Additional technologies to Ruby Version**
  - **Advanced production & delivery cases**
  - **Additional technologies (wind electrolysis, nuclear technologies)**
- **Solve running errors that cause models to hang occasionally**
- **Complete Monte Carlo capability-addition**

Improve User Interface

- **Improve web interface**
  - **Ability to submit XML directly**
  - **Additional user inputs**
    - **Overwrite default H2A inputs**
    - **Adjust additional parameters**
  - **Other requests from analysis community upon using the MSM**
- **Provide additional functionality**
  - **Allow for additional parameters to be varied, pathways to be investigated, etc.**

Link to HyDRA

- **HyDRA is a web-based GIS tool that allow analysts, decision makers, and general users to view, download, and analyze hydrogen demand, resource, and infrastructure data spatially and dynamically.**
- **With the current MSM we could analyze pathways to understand optimum location for production facilities (accounting for both feedstock & hydrogen infrastructure)**
- **Other analysis issues that require spatial analysis**

Link to HyPRO

- **HyPRO is a temporal model with the intent of developing a better understanding of how a hydrogen production infrastructure for H2 FC/ICE vehicles might develop in the US and which factors will influence its creation.**
- **Sensitivities and optimizations on input parameters could be studied by linking the MSM to HyPRO**

Other Models

- **ANL is developing a Hydrogen Quality Model that will interact with production and delivery design**
- **Interactions with optimization models like HOMER are possible**
- **Scripts could be written to provide input data and functions for economic models like NEMS and MARKAL**

Your Recommendations